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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/053,237 04/01/98 COHEN

E CIS-032-B

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WM02/0118

EXAMINER

ELALLAM, A

ART UNIT

PAPER NUMBER

2662

DATE MAILED:

01/18/01

*20*

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

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# Office Action Summary

Application No.  
09/053,237

Applicant(s)  
Cohen

Examiner  
Ahmed Elallam

Group Art Unit  
2662



☒ Responsive to communication(s) filed on Oct 23, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-3, 6, 9, 11, 12, and 15-43 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-3, 6, 9, 11, 12, and 15-43 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☒ The proposed drawing correction, filed on Oct 23, 2000 is ☒ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 18

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

## DETAILED ACTION

This is responsive to amendment filed on 10/23/00. The amendment has been entered.

### *Information Disclosure Statement*

1. The information disclosure statements filed on May 10, 1999 and June 16 fail to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered. For the references to be considered they must be listed on **PTO Form 1449**.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 2, 3, 6, 9, 11, 12, 15, 16, 17-42 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 1 and 11, the specification does not adequately describe the "a mechanism that performs a hashing function on at least a portion of network layer information in

the packets to determine a distribution of the packets to the route processing engines the distribution being such an original packet flow comprising the packet is preserved", More particularly, the specification does not describe the "determine a distribution of the packets to the route processing engines" and the "the distribution being such that an original packet flow comprising the packet is preserved".

Regarding claim 6, the specification does not adequately describe the "at least one uplink connection to an external network uses a hashing function to distribute packet flows among route processing engines". The specification does not describe the "uplink connection" and the "uplink connection" using a hash function.

Regarding claims 17, 26, and 35, the specification does not adequately describe the "selecting the one processing engine based upon, at least in part, the portion of the network layer flow information in such a way as to preserve an original packet flow comprising the at least one packet", more specifically, the specification does not describe the "preserve an original packet flow".

Regarding claims 21, 30, 39, the specification does not adequately describe "providing a table containing entries for use in selecting one processing engine and selecting one entry in the table specified by an index value, the index value being based upon the hash function value. More particularly the "use in selecting the one processing engine" is not described in the specification.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 2, 3, 6, 9, 11, 12, 15, 16, 17-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 11, the phrase "the distribution being such that an original packet flow comprising the packet is preserved" is confusing, because it is not clear what is meant by "original flow" more specifically, it is not clear where the flow originates. Additionally the phrase "original flow" in the context of the claim is vague (as in claim 1 and 11). The phrase "to the route processing engines for processing by the engines" is also confusing, because it is not clear what it meant by processing by the engines. More particularly the "processing by the engines" is vague (as in claim 1).

With regard to claim 6, the phrase "uplink connection to an external network uses a hashing function to distribute packet flows among route processing engines" is confusing, because the feature of "using a hashing function to distribute packet flows among route processing engines" is already stated in the base claim.

With regard to claims 17, 26 and 35, remarks, similar to those associated with claim 1, apply to "preserve an original packet flow".

In claim 17, 26 and 35 the phrase "network layer flow information" is confusing, because it is not clear what is meant by "network layer flow". A network layer information is well defined in the art, however the combination with the term "flow" is not a defined entity.

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 3, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Schnell, US (5,923,654) in view of Wilford, US (6,111,877).

Regarding claim 1, with reference to Fig .2, Schnell discloses a network switch, comprising:

- a plurality of port adapters (IOPORT1,..., IOPORT24) connected to a hashing logic (216),
- a plurality of packet processing elements (212, 214),
- a hash logic (216), (corresponding to compiler)
- a switch controller in combination with buffers (206),
- an input switch and output switch (200) in connection with the port adapters and the HASH LOGIC (216).

However, Schnell does not disclose the hashing function to distribute the packets to the processing engines in a way that the original packet flow is preserved.

However, with reference to Figure 4, Wilford discloses a mechanism that uses a hashing function to distribute the flows/or packets to output routing queues (140) providing a load-balancing mechanism, see column 7, lines 15-46.

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made provide the hashing mechanism of Wilford in Schnell switch to distribute packets to the processors so that processing would be faster.

Regarding claim 3, with reference to Fig .2A, Schnell shows that the switch (200) is a crossbar switch.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schnell, US (5,923,654) in view of Turner et al, US (6,018,524).

Schnell discloses substantially all the claim limitations of claim 2 except that he does not disclose an uplink connection to an external network.

However, with reference to Fig .16, Turner discloses an uplink connection between a communication network and a router (any output link 1-n is considered an uplink, because Turner deals with IP routing).

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to have Turner's uplink connection with the crossbar switch of Schnell so that Schnell system can provide Internet connections.

9. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varghese et al, US (5,905,723) in view of Wilford.

Regarding claims 11 and 12, with reference to Fig .1 and 2, Varghese discloses a scalable routing system for distributing packets in a network, comprising:

- a plurality of network interfaces FDOS, FOOS, FDDI, ATM, SONET and SMDS,

- a plurality of Forward Engines (FE) (20, 21), that reads on plurality of route processing engines;

- a crossbar switch interconnecting the network interfaces and the FE;

Varghese further discloses that in routers that have a separate processor in each link card are scalable, see column 5, lines 60-67.

Varghese discloses that forwarding the packets over the links employs either a static or dynamic algorithm to determine how the packets are distributed over the multiple links.

Varghese does not discloses that the network interfaces uses a hashing function to distribute packet flows among the plurality of FE (route processing engines).

However, with reference to Figure 4, Wilford discloses a mechanism that uses a hashing function to distribute the flows/or packets to output routing queues (140) providing a load-balancing mechanism (preserving a flow), see column 7, lines 15-46.

Therefore, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to use the hashing mechanism of Wilford in Varghese's Forwarding Engine instead of the static or dynamic distribution algorithm of packet over links so that a load sharing over links can be performed while preserving the flows of data.

It should be noted that hashing in Wilford's mechanism is carried on network layer. See Figure 2A (because it uses routing information).

***Allowable Subject Matter***



10. Claims 6, 9, 15, 16, 10-20, 22-25, 27-29, 31-34, 36-38 and 40-43 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112 set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Ahmed Elallam* whose telephone number is (703) 308-6069. The examiner can normally be reached on Monday through Friday from 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Hassan Kizou*, can be reached on (703) 305-4744.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

**13. Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**


(703) 308-6743 or (703) 305-3988

**For informal or draft communications,** please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA., Sixth Floor (Receptionist).

Ahmed Elallam  
Patent Examiner  
Technology center 2700

January 14, 2001



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